

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Work Order ID 157396

Tuesday, February 21, 2017 1:12:44 PM

157396

Page 2

Item ID: 646.9701 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Cutter Sub Assembly
Start Date: 3/3/2017 Start Qty: 3.00 ***3*** Cust Item ID:
Required Date: 3/8/2017 Req'd Qty: 3.00 ***3*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Identify as per dwg & Stock Location: <u>CCK007</u>	0.00					DAS 6 9-89	MAR 21 2017	
140									
Packaging	Memo	0.00							
Packaging	***IDENTIFY AS PER IAW MPP-120***								
150	QC21- Final Inspection - Work Order Release	0.00							
150									
QC	Memo	0.05							
Quality Control									

17/3/23 98

DAS
21
9-89 MAR 22 2017

DQA: _____ Date: _____



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OTHER : _____					

Picklist Print

Tuesday, February 21, 2017 1:12:47 PM

Page 1

Work Order ID: 157396

157396

Parent Item: 646.9701

646 9701

Parent Item Name: Cutter Sub Assembly

Start Date: 3/3/2017

Required Date: 3/8/2017

Start Qty: 3.00

Required Qty: 3.00

Comments: IPP REV:A 12.08.13 NEW ISSUE DD VERF:JFS
:B AS PER REV D 16-03-07 JLM VERIFIED BY:JFS

IPP REV

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
646.9710 *646 9710* Body		Manufactured	No			110	Each	14.0000	1	36		MAR 14 2017	
**													
				<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>				
				cck012			14						
				150127			4						
				152187			10						
646.9711 *646 9711* Blade		Manufactured	No			110	Each	35.0000	2	612		MAR 14 2017	
**													
				<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>				
				CCK106			35						
				150119			6						
				152743			10						
				152811			10						
				153723			9						
MS27039-08-19 *MS27039-08-19* Screw		Purchased	No			110	Each	405.0000	6	1836		MAR 14 2017	
**													
				<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>				
				GA			155						
				m135948			155						
				ST277			250						
				m136537			100						
				m136851			150						

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20 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
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Page 2

Work Order ID: 157396

157396

Parent Item: 646.9701

646 9701

Parent Item Name: Cutter Sub Assembly

Start Date: 3/3/2017

Required Date: 3/8/2017

Start Qty: 3.00

Required Qty: 3.00

NAS1149FN832P

Purchased

No

110

Each

2,683.000

12

36 72

NAS1149FN832P

Washer

MAR 1 1 2017

Location

Loc Qty

Loc Code

GA

564

M135058

232

M136182

332

ST260a

1500

M136866

1500

ST263

619

M136182

619

MS21042L08

Purchased

No

110

Each

862.0000

6

18 36

MS21042L 08

Nut

MAR 1 4 2017

Location

Loc Qty

Loc Code

GA

503

m135274

18

m135978

485

ST303

359

m136643

160

m136851

199

Tuesday, February 21, 2017 1:12:47 PM

Shop Packet Print

Page 2

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OTHER : _____																																																																				



APICAL INDUSTRIES, INC.
dba DART AEROSPACE

TRANSACTION CODES (TC):
A-ADD C-CREATE
R-REVISE D-DELETE

ENGINEERING CHANGE NOTICE NO.

05360

SHEET 1 OF 1

DWG NO. 646.9700

REV: D

PREPARED BY J. BECKER

DATE: 03/24/16

EFFECT ON DWG
☐ INC. ☒ UNINC.

DWG TITLE: CUTTER SUB ASSY

APPROVED BY: ENGR *[Signature]*

MFG *[Signature]*

QC *[Signature]*

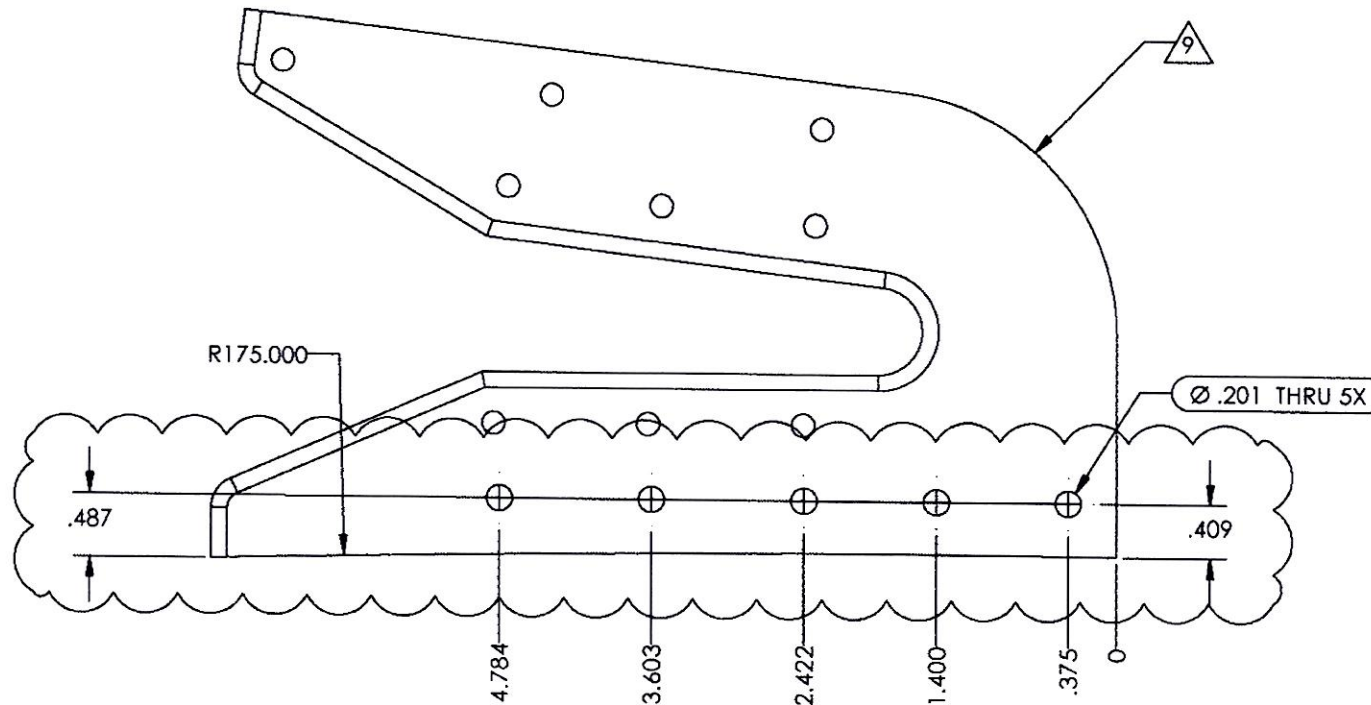
EFF. CURRENT ORDER

REASON: REVISED DIMENSIONS

ECR: N/A

ACTION ITEM:
1.

SHEET 7, ZONE C3 IS:



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 157396 MLC
17 03-08

PRINTED COPY OF THIS DOCUMENT IS FOR REFERENCE ONLY AND IS UNCONTROLLED

DOCUMENTS EFFECTED:

☐ PATTERN ☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM

CHANGE CATEGORY

☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED

☐ YES ☒ NO

DART
AEROSPACEAPICAL INDUSTRIES, INC.
dba DART AEROSPACETRANSACTION CODES (TC):
A-ADD C-CREATE
R-REVISE D-DELETE

ENGINEERING CHANGE NOTICE NO.

05345

SHEET 1 OF 1

DWG NO. 646.9700

REV: D

PREPARED BY J. GARDINER

DATE: 03/15/16

EFFECT ON DWG

☐ INC. ☒ UNINC.

DWG TITLE: CUTTER SUB ASSY

APPROVED BY:

ENGR:

MFG

QC

EFF.

CURRENT ORDER

REASON: REVISED NOTES

ECR:

N/A

ACTION ITEM:

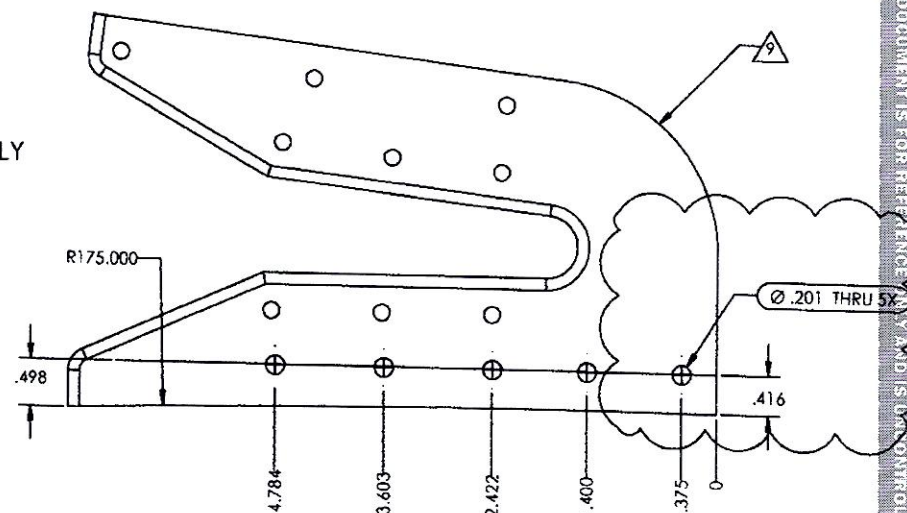
1.

SHEET 1, ZONE A6 IS:

NOTES:

IS

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH IAW MPP-172 SECTION 2.1, 3.3 & 4.3.
- 3 MATERIAL: A151 A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MPP-172 SECTION 3.3; 1-2 MIL MAX
- 5 DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
- 6 IDENTIFY IAW MPP-120
- 7 APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE
- 9 ALL DIMENSIONS NOT SPECIFIED ARE CONTROLLED BY 646.9710.

SHEET 7, ZONE C5 IS:

DOCUMENTS EFFECTED:

☐ PATTERN ☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM

CHANGE CATEGORY

☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED

☐ YES ☒ NO

1
2
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APCAL INDUSTRIES DBA DART AEROSPACE. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APCAL INDUSTRIES DBA DART AEROSPACE IS PROHIBITED.

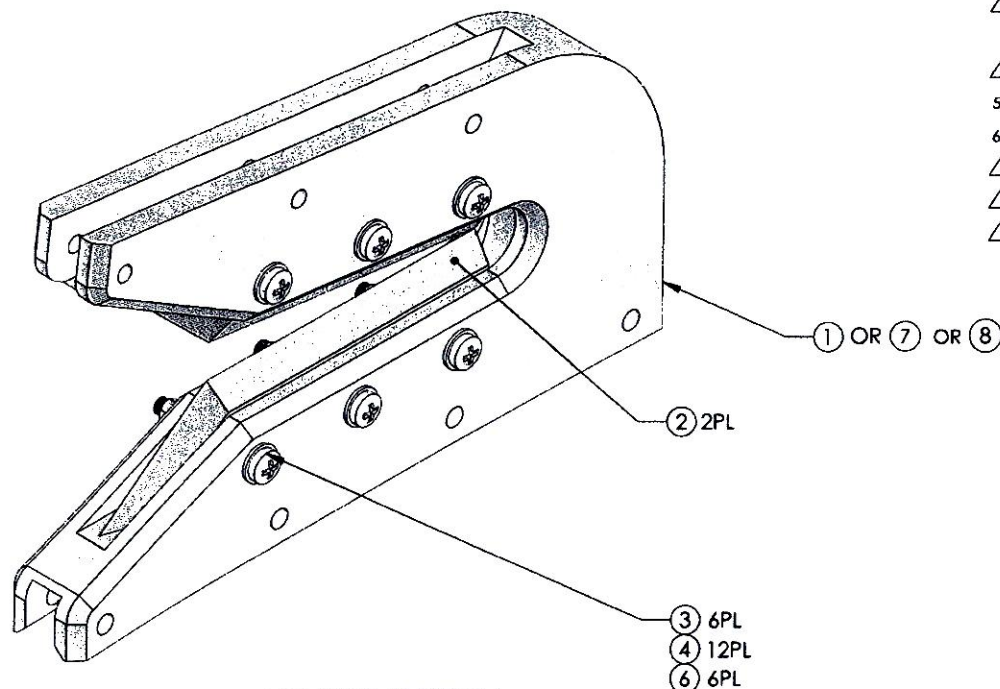
PRINTED COPY OF THIS DOCUMENT IS FOR REFERENCE ONLY AND IS UNCONTROLLED

8

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
1	LAST PROTOTYPE REVISION - PRG		N/C
2	INITIAL RELEASE	03/29/09	P. BRAVO
A	INCORPORATED ECH 00744 00828 00972	04/04/13	P. BRAVO
B	INCORPORATED ECH 00947	07/03/13	P. BRAVO
C	INCORPORATED ECH 04034	08/09/13	P. BRAVO
D	INCORPORATED ECH 04039	02/26/14	P. BRAVO

NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH IAW MPP-172 SECTION 3.3 & 4.3.
- 3 MATERIAL: AISI A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MPP-172 SECTION 3.3; 1-2 MIL MAX
- 5 DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
- 6 IDENTIFY IAW MPP-120
- 7 APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP. DO NOT BREAK SHARP EDGE
- 9 ALL DIMENSIONS NOT SPECIFIED ARE CONTROLLED BY 646.9710.



646.9701 SHOWN
646.9702 & 646.9703 TYP

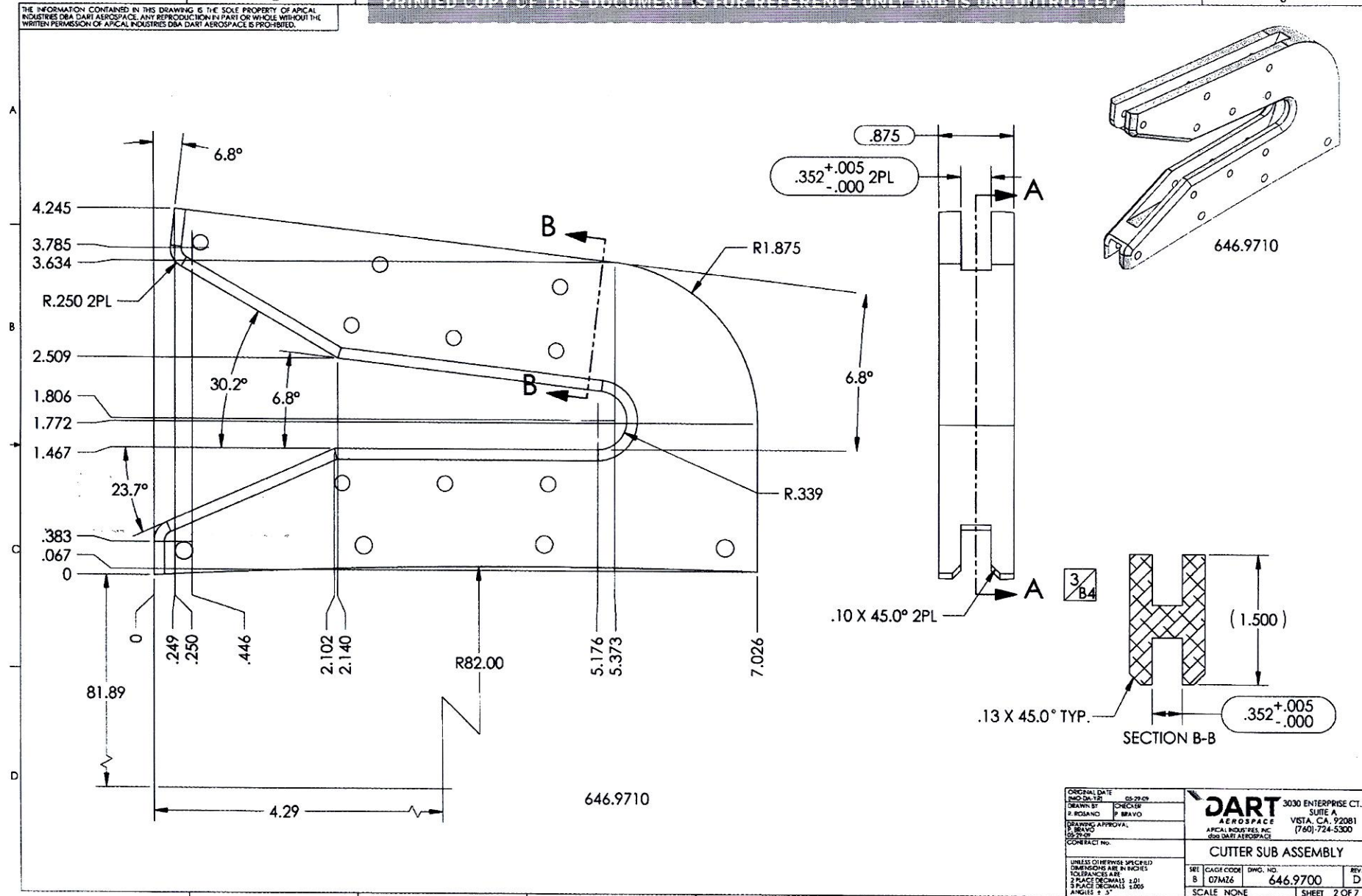
UNINCORPORATED ECN(s)

05345, 05360,

1			8	646.9713	BODY			
	1		7	646.9712	BODY			
6	6	6	6	601.1541	LOCKNUT	MS21042/08		
A/R	A/R	A/R	5	601.2045	RTV, LOCTITE 598			
12	12	12	4	601.2764	WASHER	MS1147HMS2P		
6	6	6	3	601.2765	SCREW	MS27039-0819		
2	2	2	2	646.9711	BLADE			
			1	646.9710	BODY			
X				646.9703	CUTTER SUB ASSY			
	X			646.9702	CUTTER SUB ASSY			
		X		646.9701	CUTTER SUB ASSY			
9702	9702	9701	FIND #	PART #	DESCRIPTION	MAT'L	SPC.	
QTY				PARTS LIST				
NEXT ASSY (S)								

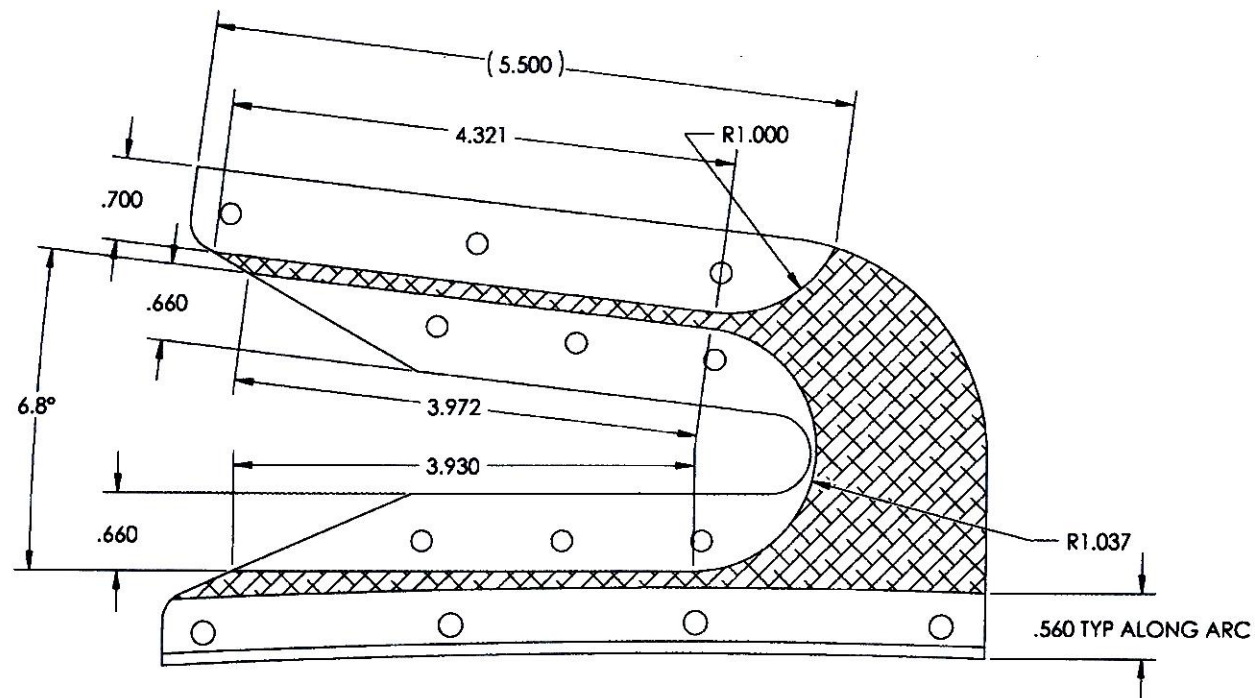
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PRINTED COPY OF THIS DOCUMENT IS FOR REFERENCE ONLY AND IS UNCONTROLLED



ORIGINAL DATE 05-29-09	3030 ENTERPRISE CT., SUITE A VISTA, CA 92081 (760) 724-5300
DRAWN BY Y. ROMANO	CHECKED P. BRAVO
DESIGNING APPROVAL P. BRAVO	APICAL INDUSTRIES INC. DBA DART AEROSPACE
CONTRACT NO.	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ± .5°	
SHEET 8	CAGE CODE 07M26
DWG. NO. 646.9700	REV. D
SCALE NONE	SHEET 2 OF 7

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SECTION A-A $\frac{2}{C6}$

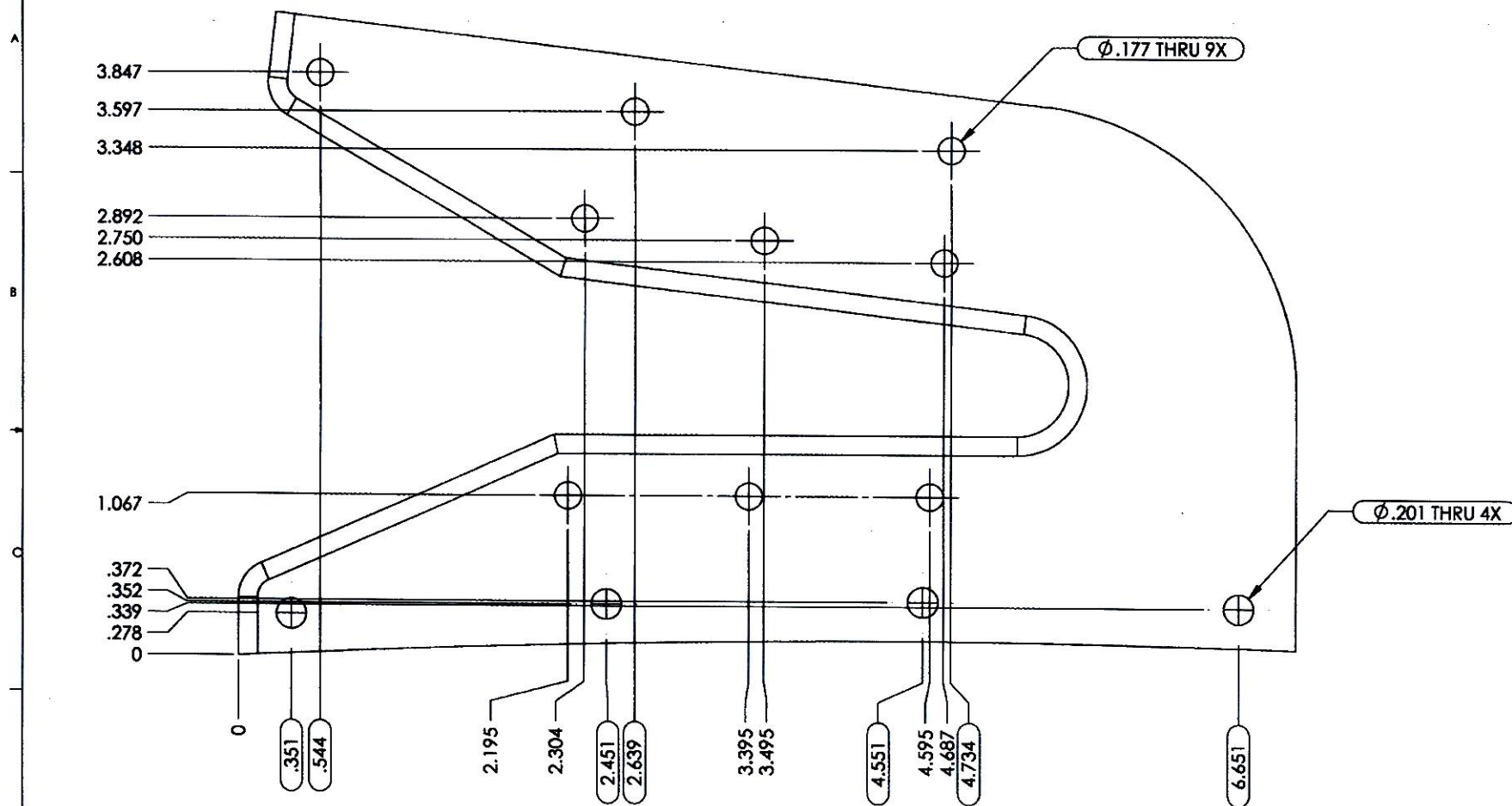
646.9710

ORIGINAL DATE: 06-29-09		3030 ENTERPRISE CT., SUITE A	
DRAWN BY: J. BOSANO		VISTA, CA. 92081	
CHECKED BY: P. BRAVO		(760)-724-5300	
DRAWING APPROVAL: P. BRAVO		APICAL INDUSTRIES, INC. DBA DART AEROSPACE	
DATE: 06-29-09		CUTTER SUB ASSEMBLY	
CONTRACT NO.:		REV. 1	
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.		REV. 2	
TOLERANCES ARE:		REV. 3	
3 PLACE DECIMALS .01		REV. 4	
5 PLACE DECIMALS .0005		REV. 5	
ANGLES .5°		REV. 6	
SCALE: NONE		SHEET 3 OF 7	

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8

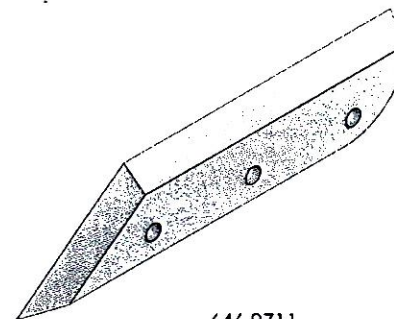
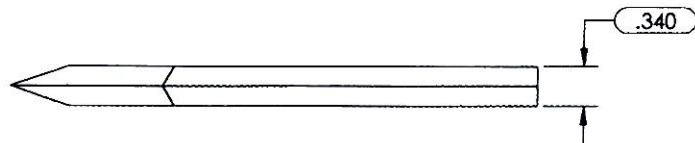


HOLE LOCATIONS +/- .002

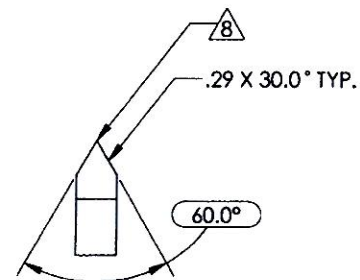
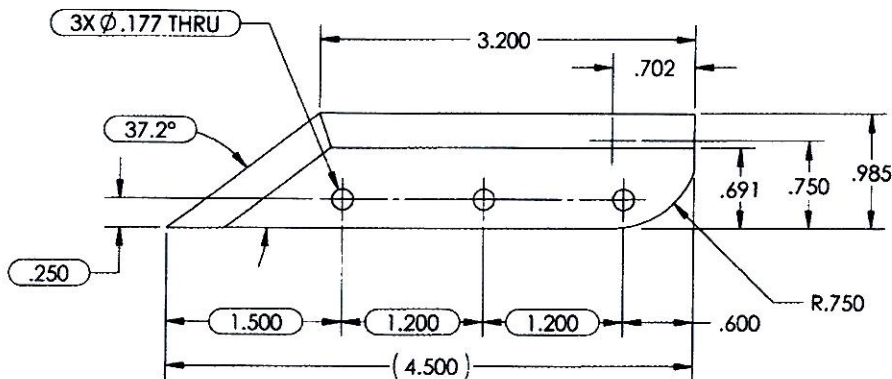
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ORIGINAL DATE: 05-27-09		3030 ENTERPRISE CT., SUITE A, VISTA, CA 92081 (760)-724-5300	
DRAWN BY: R. BORGARD	CHECKED: P. BRAVO	DART AEROSPACE APICAL INDUSTRIES, INC. DBA DART AEROSPACE	
DESIGNING APPROVAL:		CUTTER SUB ASSEMBLY	
CONTRACT NO.:		REV: 8	REV: D
DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES. TOLERANCES ARE: 2 PLACE DECIMALS ±.01, 3 PLACE DECIMALS ±.005, ANGLES ±.5°		CAGE CODE: 646.9700	SCALE: NONE
		SHEET 4 OF 7	

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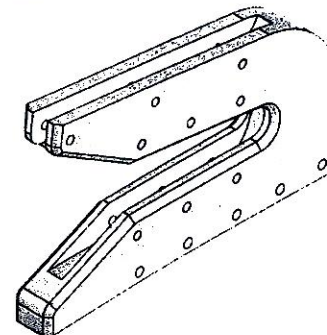
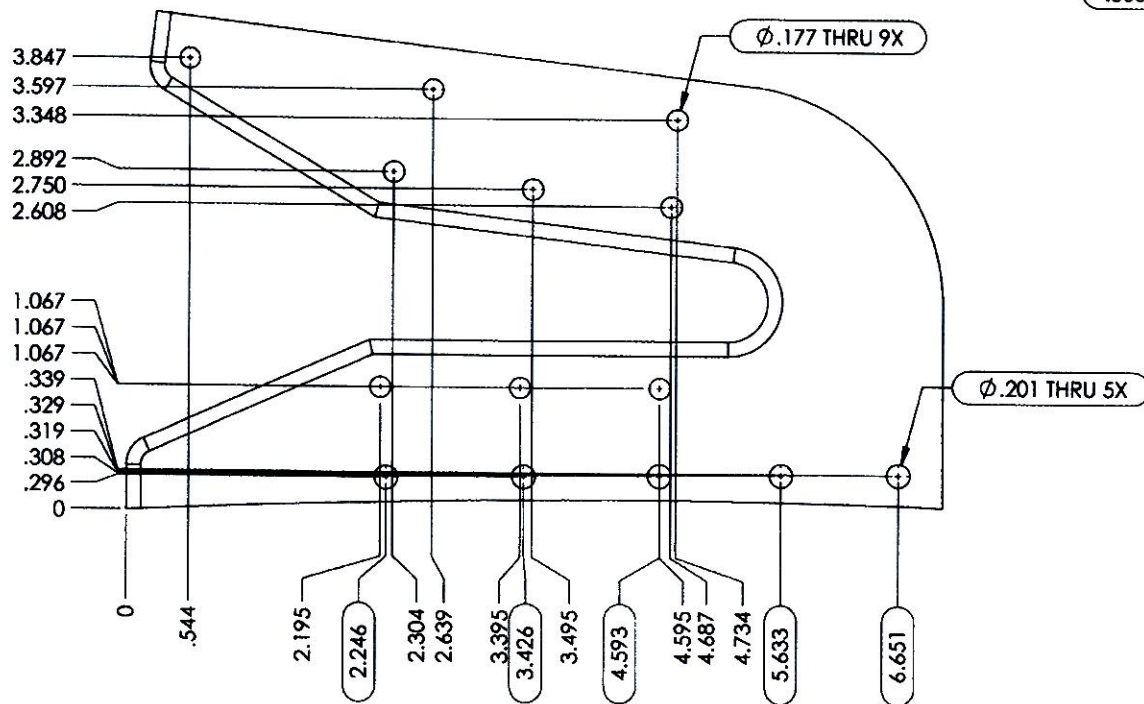
646.9711



646.9711

ORIGINAL DATE 12/01/01		CUT-21-01	
DRAWN BY F. ROSANO	CHECKED P. BRAYO	3030 ENTERPRISE CT. SUITE A VISTA, CA. 92081 (760)-724-5300	
DRAWING APPROVAL P. BRAYO		APICAL INDUSTRIES, INC. DBA DART AEROSPACE	
SHEET NO. 1		CONTRACT NO.	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°			
SHEET B	CAGE CODE 07M26	DWG. NO. 646.9700	REV. D
SCALE NONE		SHEET 5 OF 7	

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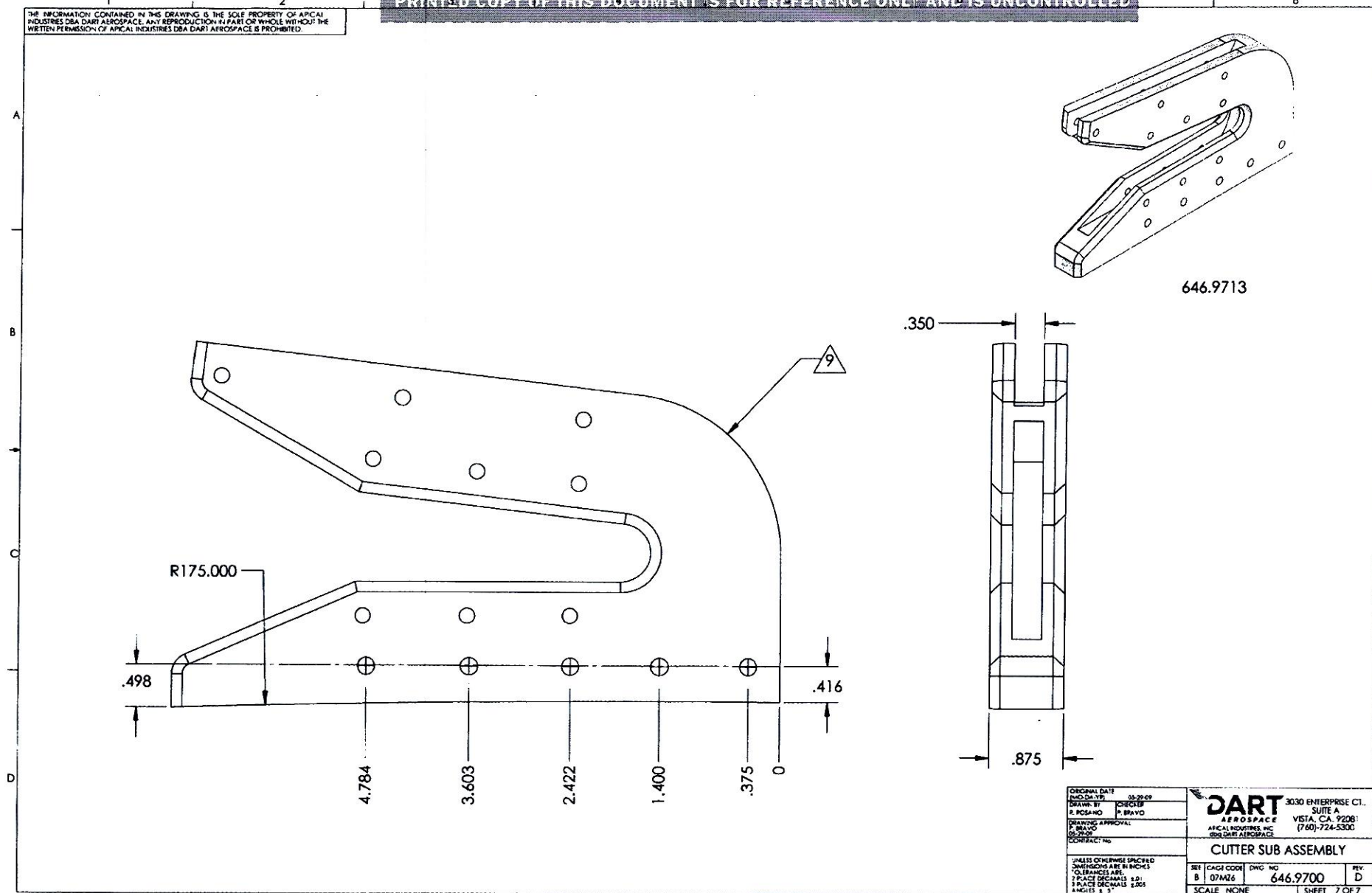


646.9712 9

646.9712

ORIGINAL DATE 05-29-00		3030 ENTERPRISE CT., SUITE A	
DRAWN BY R. ROSANO		VISTA, CA. 92081	
CHECKED BY P. BRAYO		(760) 724-5300	
DRAWING APPROVAL (Signature)		APICAL INDUSTRIES, INC. (DBA DART AEROSPACE)	
CONTRACT NO.		CUTTER SUB ASSEMBLY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 1 PLACE DECIMALS .001 2 PLACE DECIMALS .005 ANGLES .5°		SRT / CAGE CODE B / 07M66	DWG. NO. 646.9700
SCALE NONE		REV D	SHEET 6 OF 7

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ORIGINAL DATE: 05-20-09		DART AEROSPACE		3030 ENTERPRISE CT., SUITE A	
DRAWN BY: J. BRYAN		CHECKED BY: J. BRYAN		VISTA, CA. 92081	
DRAWING APPROVAL:		APCAL INDUSTRIES, INC.		(760)-724-5300	
CONTRACT NO:		CUTTER SUB ASSEMBLY			
UNLESS OTHERWISE SPECIFIED		DIMENSIONS ARE IN INCHES			
TOLERANCES ARE:		3 PLACE DECIMALS ±.01			
ANGLES ±.5°		SCALE: NONE		SHEET 7 OF 7	